

What is Claimed Is:

1. A method for purifying process waste gases containing selected harmful substances comprising:

introducing the process waste gases into a waste gas purification system having a reaction chamber, an exit, and operating parameters;

post-treating reaction products leaving the reaction chamber in a sorbtion chamber with an associated washing agent circuit containing washing agent;

measuring with a first detector the type and amount of selected harmful substances in the process waste gas before said waste gases enter the waste gas purification system to generate measuring signals;

determining with a second detector the type and amount of selected harmful substances, including perfluorocarbons and hydrofluoric acid, of the reaction products leaving the waste gas purification system at the exit of the purification system to generate measuring signals; and

directly using the measuring signals for adjusting the operating parameters of the waste gas purification system, said operating parameters including amount of combustible gas, amount of oxygen, amount of washing agent in the washing agent circuit, and pH of the washing agent.

2. The method according to Claim 1, wherein the operating parameters are regulated as a function of the amounts of selected harmful substances in the process waste gas.

3. The method according to Claim 1, wherein upon detection of at least one of the

selected harmful substances by the first detector, the operating parameters of the waste gas purification system are preset with empirical values with reference to the amount of combustible gas, the amount of oxygen, the amount of washing agent in the washing agent circuit, and the pH of the washing agent.

4. The method according to Claim 3, wherein the operating parameters are preset by a self-learning system on the basis of comparatively determined waste gas species and concentrations of harmful substances.

5. The method according to Claim 2, wherein upon detection of at least one of the selected harmful substances by the first detector, the operating parameters of the waste gas purification system are preset with empirical values with reference to the amount of combustible gas, the amount of oxygen, the amount of washing agent in the washing agent circuit, and the pH of the washing agent.

6. The method according to Claim 5, wherein the operating parameters are preset by a self-learning system on the basis of comparatively determined waste gas species and concentrations of harmful substances.

7. The method according to Claim 1, wherein the operating parameters of the waste gas purification system are adjusted as a function of the measuring signals of the second detector in such a way that the concentration of selected harmful substances at the exit of the waste gas purification

system is regulated to a minimum.

8. The method according to Claim 1, wherein the measuring signals are obtained in a contactless manner.

9. The method according to Claim 1, wherein the measuring signals are obtained by optical spectroscopy.

10. The method according to Claim 1, wherein if an elevated concentration of HF is detected by the second detector then at least one of the pH of the washing agent and the amount of the washing agent is increased.

11. The method according to Claim 1, wherein if elevated concentrations of selected harmful substances are detected by the second detector the amount of combustible gas and/or the amount of oxygen supplied is increased.

12. The method according to Claim 1, wherein the type and amount of harmful substances are substantially simultaneously calculated by a computer in the waste gas purification system on the basis of the measuring signals of the first and second detectors, and the operating parameters of the waste gas purification system are regulated as a function of the amounts of harmful substances measured by the first detector and by the second detector.

13. The method according to Claim 1, wherein the operating parameters are regulated in accordance with the amount of process waste gas supplied.

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